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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,495	10/24/2002	Ronald Scott Bunker	839-1333	9074

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ARLINGTON, VA 22203

EXAMINER

RODRIGUEZ, WILLIAM H

ART UNIT	PAPER NUMBER
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3746

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/065,495	<b>Applicant(s)</b> BUNKER, RONALD SCOTT	
	<b>Examiner</b> William H. Rodriguez	<b>Art Unit</b> 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,8-11 and 14-17 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 and 16 is/are allowed.
- 6) ☒ Claim(s) 1,3,8,10,11,14,15 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

### DETAILED ACTION

1. Prosecution on the merits of this application is reopened on claims 1, 3, 8, 10, 11, 14, 15 and 17 considered unpatentable for the reasons indicated below. Applicant is advised that the Notice of Allowance mailed is vacated. If the issue fee has already been paid, applicant may request a refund or request that the fee be credited to a deposit account. However, applicant may wait until the application is either found allowable or held abandoned. If allowed, upon receipt of a new Notice of Allowance, applicant may request that the previously submitted issue fee be applied. **If abandoned, applicant may request refund or credit to a specified Deposit Account.**

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

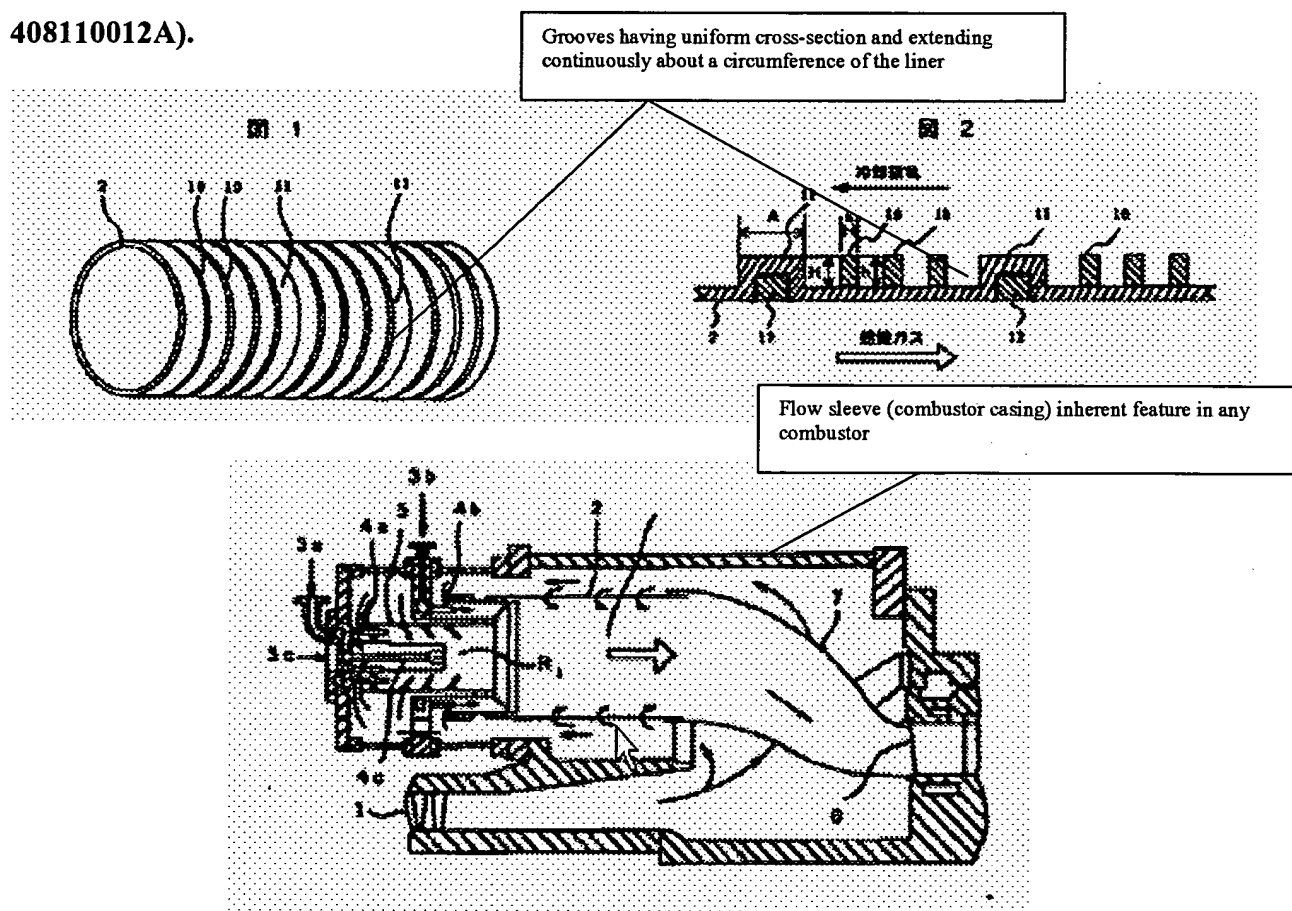
(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the

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reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

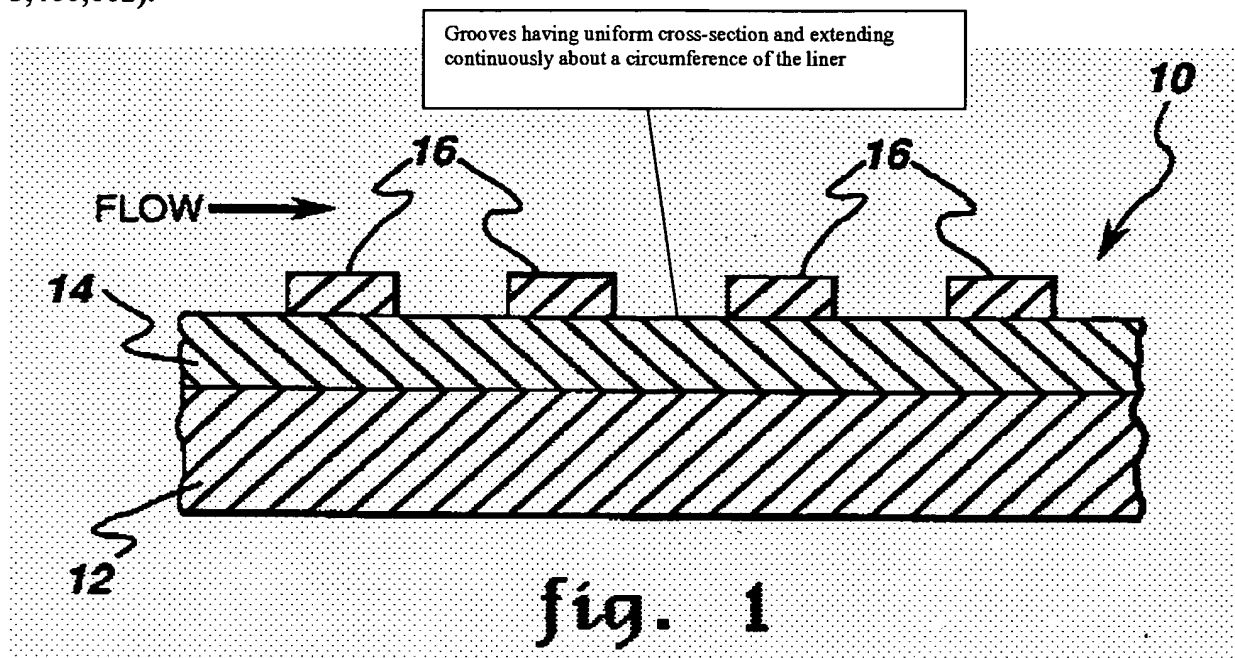
3. Claim 17 is rejected under 35 U.S.C. 102(b) as being anticipated by **Innami et al. (JP 408110012A)**.



**Innami** teaches a combustor for a gas turbine, the combustor including a liner having a substantially cylindrical shape; a flow sleeve surrounding said liner; a first plurality of axially spaced, continuous circumferential grooves formed in an outside surface of said liner, each groove having a uniform cross-section and extending continuously about a circumference of the liner. See particularly **Figures 1, 2 and 8**.

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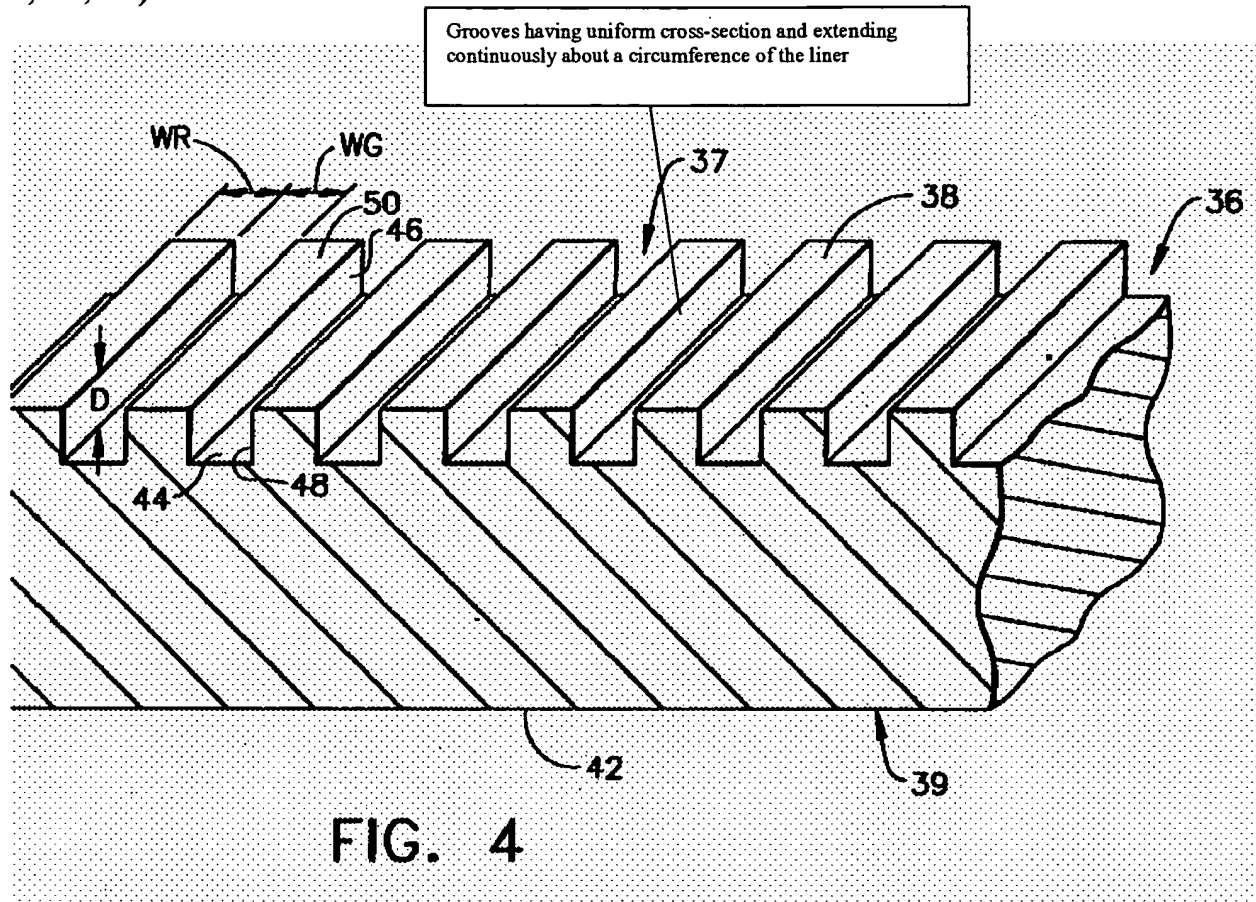
4. Claim 17 is rejected under 35 U.S.C. 102(b) as being anticipated by Correa (US 5,460,002).



Correa teaches a combustor for a gas turbine, the combustor including a liner having a substantially cylindrical shape; a flow sleeve surrounding said liner (not shown but inherent, i.e., casing of combustor surrounding combustor liner); a first plurality of axially spaced, continuous circumferential grooves formed in an outside surface of said liner, each groove having a uniform cross-section and extending continuously about a circumference of the liner. See particularly Figure 1.

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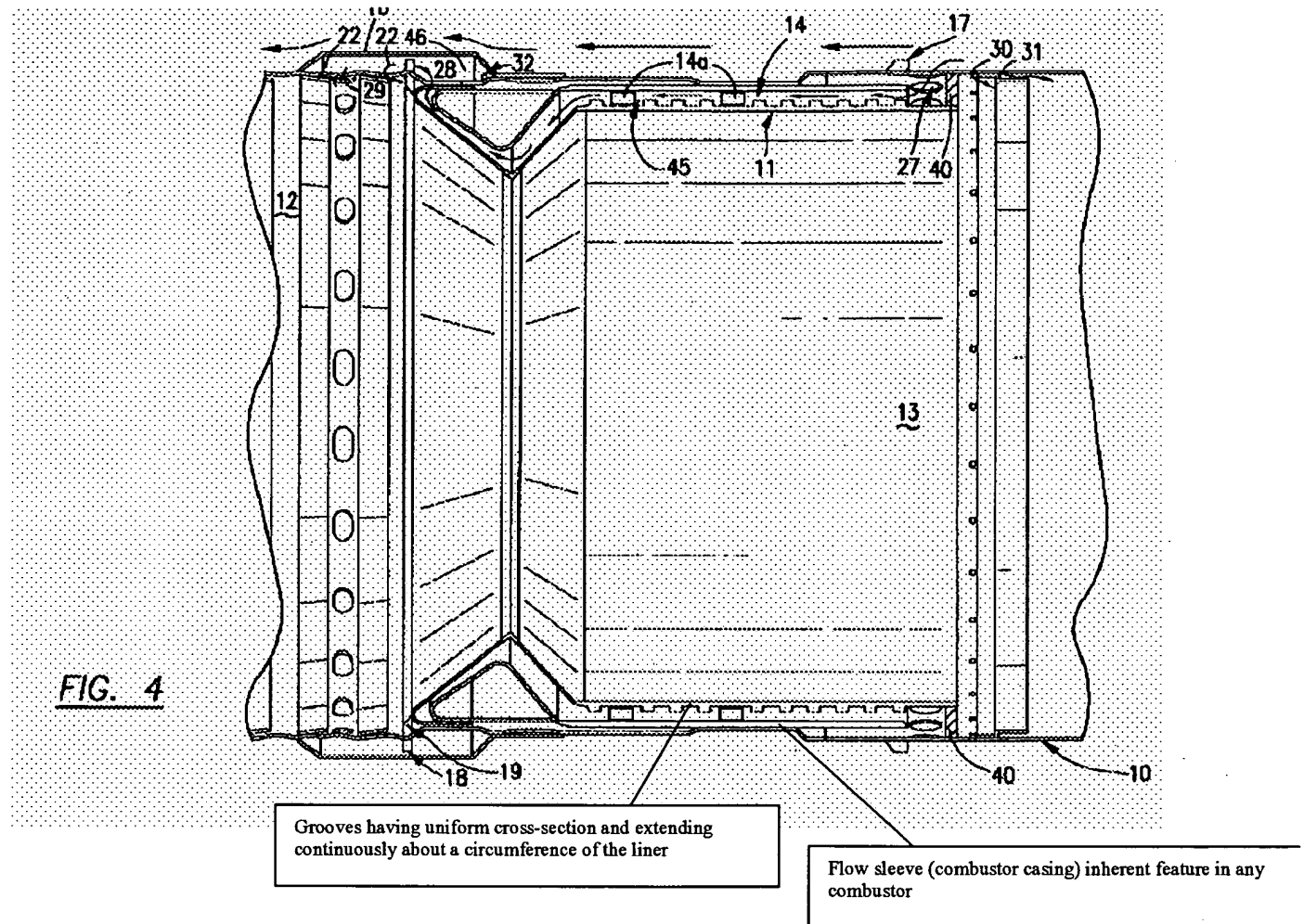
5. Claim 17 is rejected under 35 U.S.C. 102(b) as being anticipated by Ward (US 5,327,727).



Correa teaches a combustor for a gas turbine, the combustor including a liner having a substantially cylindrical shape; a flow sleeve surrounding said liner (not shown but inherent, i.e., casing of combustor surrounding combustor liner); a first plurality of axially spaced, continuous circumferential grooves formed in an outside surface of said liner, each groove having a uniform cross-section and extending continuously about a circumference of the liner. See particularly Figure 1.

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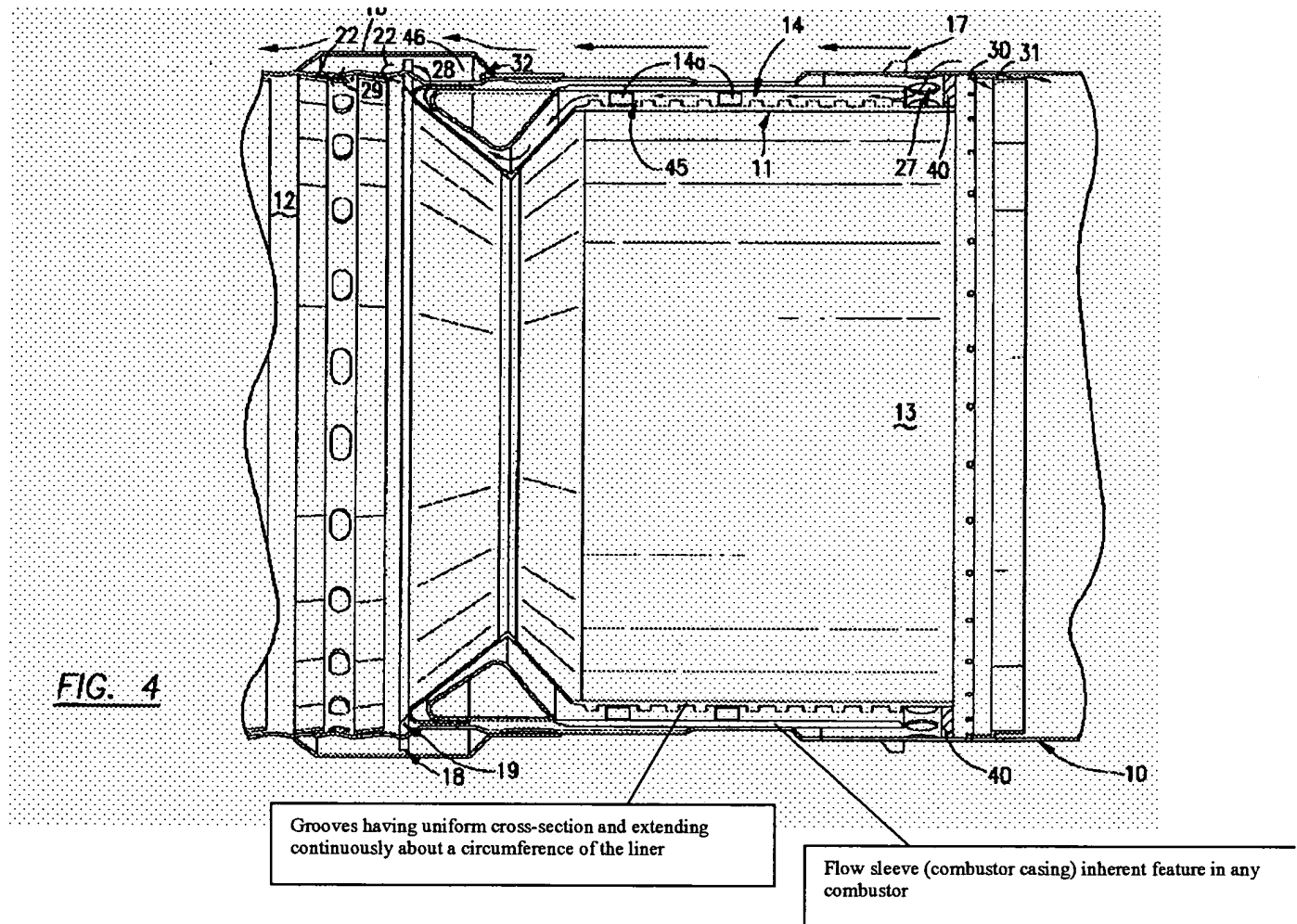
6. Claim 17 is rejected under 35 U.S.C. 102(e) as being anticipated by Kraft et al. (US 6,484,509).



**Kraft** teaches a combustor for a gas turbine, the combustor including a liner having a substantially cylindrical shape; a flow sleeve surrounding said liner; a first plurality of axially spaced, continuous circumferential grooves formed in an outside surface of said liner, each groove having a uniform cross-section and extending continuously about a circumference of the liner. See particularly **Figures 4 and 6**.

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7. Claim 17 is rejected under 35 U.S.C. 102(e) as being anticipated by Kraft et al. (US 6,446,438).



**Kraft** teaches a combustor for a gas turbine, the combustor including a liner having a substantially cylindrical shape; a flow sleeve surrounding said liner; a first plurality of axially spaced, continuous circumferential grooves formed in an outside surface of said liner, each groove having a uniform cross-section and extending continuously about a circumference of the liner. See particularly **Figures 4 and 6**.



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8. Claims 1, 3, 8 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by **Bunker (US 6,722,134)**.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

With respect to claim 1, **Bunker** teaches a combustor liner for a gas turbine, the combustor liner having a substantially cylindrical shape; and a plurality of axially spaced annular grooves 22 formed in an outside surface of said combustor liner, each groove having a uniform, substantially semi-circular cross-section and extending continuously about a circumference of said liner (see particularly column 1 line 8; column 2 line 60 to column 3 line 12). See particularly **Figure 3**.

With respect to claim 3, **Bunker** teaches said grooves 22 are arranged transversely to a direction of cooling air flow. See particularly **Figure 3**.

With respect to claim 8, **Bunker** teaches that the grooves are angled relative to a direction of cooling air. See particularly **Figure 4**.

With respect to claim 17, **Bunker** teaches a combustor for a gas turbine, the combustor including a liner having a substantially cylindrical shape; a flow sleeve (not shown but inherent, i.e., casing of combustor surrounding combustor liner) surrounding said liner; a first plurality of axially spaced, continuous circumferential grooves 22 formed in an outside surface of said liner,

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each groove having a uniform cross-section and extending continuously about a circumference of the liner (see particularly column 1 line 8; column 2 line 60 to column 3 line 12). See particularly **Figure 3**.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 10, 11, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bunker (US 6,722,134)**.

With respect to claims 10 and 11, **Bunker** teaches a combustor liner for a gas turbine, the combustor liner having a substantially cylindrical shape; and a plurality of axially spaced annular grooves 22 formed in an outside surface of said combustor liner, each groove extending continuously about a circumference of said liner, wherein said grooves are semi-circular in cross-section, based on a diameter D (see particularly column 1 line 8; column 2 line 60 to column 3 line 12; and **Figure 3**). Further, **Bunker** teaches that the diameter, depth of the grooves may also vary depending on cooling requirements (technical requirements). Yet further, varying dimensions at will based on technical requirements at the time the invention was made within the level of a combustor designer (one of ordinary skill in the art). Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to select an appropriate depth or space/distance between adjacent grooves depending on the technical requirement (i.e., cooling) of the specific design.

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With respect to claim 14, **Bunker** teaches said grooves 22 are arranged transversely to a direction of cooling air flow. See particularly **Figure 3**.

With respect to claim 15, **Bunker** teaches that the grooves are angled relative to a direction of cooling air. See particularly **Figure 4**.

*Allowable Subject Matter*

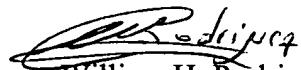
11. Claims 9 and 16 are allowed.

*Contact information*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Rodriguez whose telephone number is 571-272-4831. The examiner can normally be reached on Monday-Friday 7:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy S. Thorpe can be reached on 571-272-4444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 3/24/05  
William H. Rodriguez  
Examiner  
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